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WRIST TOOL HOLDER

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FIELD OF THE INVENTION

This invention relates generally to tool carriers and, more specifically, to tool carriers to be worn by a user.

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BACKGROUND OF THE INVENTION

Tools are often carried or held in tool boxes. The tool boxes may include trays that can be removed and set by an area being worked on by a mechanic or other crafts person. However, such tool trays may be inaccessible to a mechanic working in a confined space requiring the mechanic to enter and exit the work area to swap tools.

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Tool belts are also used, perhaps more commonly by carpenters than mechanics, as a way of accessibly carrying tools. However, tool belts can be inconvenient for smaller tools, and access to a belt can be difficult if the user is prone, or leaning over a projection such as a fender of a car.

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Thus, there is an unmet need for an accessible and convenient device for carrying tools, especially when the user is working in a confined or limited space.

SUMMARY OF THE INVENTION

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The present invention comprises an apparatus for removably holding tools. The apparatus includes an armband arranged to removably fasten around a user's forearm. At least one tool holder is attached to the armband. The at least one tool holder is arranged to removably receive and hold a tool. In accordance with other aspects of the invention, the




25315

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- 1 -

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tool holder includes a magnet. In accordance with yet other aspects of the invention, the tool holder includes a band that a tool can be removably slid under.

BRIEF DESCRIPTION OF THE DRAWINGS

5 The preferred and alternative embodiments of the present invention are described in detail below with reference to the following drawings.

FIGURE 1 is a drawing of an exemplary armband tool carrier of the present invention;

FIGURE 2 is a close-up of an exemplary armband tool carrier of the present invention, with tools shown;

10 FIGURE 3 is a close-up of an exemplary armband tool carrier of the present invention showing aspects of the attached tool holders;

FIGURE 4 is an outside view of an unrolled exemplary armband tool carrier of the present invention;

15 FIGURE 5 is an underside view of an unrolled exemplary armband tool carrier of the present invention;

FIGURE 6A is a side view of an exemplary socket tool holder of the present invention;

FIGURE 6B is a front view of an exemplary socket tool holder of the present invention;

20 FIGURE 6C is a top view of an exemplary socket tool holder of the present invention;

FIGURE 6D is a side view of an exemplary socket tool holder of the present invention with a socket in place;

25 FIGURE 7A is a side view of an exemplary socket mating clip tool holder of the present invention;

FIGURE 7B is an end view of an exemplary socket mating clip tool holder of the present invention;

FIGURE 7C is a side view of an exemplary socket mating clip tool holder of the present invention with a socket in place;

30 FIGURE 7D is a side view of an exemplary socket mating clip tool holder installed on an exemplary wrist armband tool carrier of the present invention; and,

FIGURE 8 is a top view of an exemplary magnet tool holder of the present invention.

FIGURE 9 is a side view of an exemplary arm band tool carrier of the present invention with interwoven tool bands.

35 FIGURE 10 is a detailed view of a strap tool holder of the present invention.



25315
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DETAILED DESCRIPTION OF THE INVENTION

The present invention comprises an apparatus for removably holding tools. By way of background, the apparatus includes an armband arranged to removably fasten around a user's forearm. At least one tool holder is attached to the armband. The at least one tool holder is arranged to removably receive and hold a tool. In accordance with other aspects of the invention, the tool holder includes a magnet. In accordance with yet other aspects of the invention, the tool holder includes a band that a tool can be removably slid under.

Turning to FIGURE 1, an armband tool carrier 10 of the present invention is shown wrapped around a user's arm 5. The armband 10 is held in place with fasteners 12 that in this exemplary embodiment wrap around the user's arm 5 near the wrist and near the elbow, with the body or main wrap 14 of the armband 10 between the two fasteners 12. By way of example and not limitation the fasteners 12 suitably include hook and loop fasteners on straps permitting the armband 10 to be removably, comfortably, and securely fastened around the user's arm 5. The armband 10 is shown holding a plurality of tools 7 including a rag 8 and a socket wrench socket 9.

In this example embodiment, the wrap 14 of the armband 10 includes a plurality of tool bands 20 that tools 7 can removably and securely be slid under and held in place until needed by the user. By way of example and not limitation, the tool bands 20 are fastened to the wrap 14 of the armband 10 at their ends (not shown) with the bands extending at least part way around the wrap 14 in place around the user's arm 5. The tool bands 20 by way of example and not limitation, suitably may be fabricated out of a flexible material such as rubber, plastic or nylon. The tool bands 20 by way of example may also be stretchable, such as a stretchable rubber, plastic or elastic bands fastened to the wrap 14 at their ends (not shown). The tool bands 20 suitably also may include a soft, pliable or gummy material, such as a soft rubber, on the inside surface of the tool band 20 (not shown), helping to hold the tools 7 in place. In the embodiment shown in FIGURE 1 the wrap 14 of the armband 10 includes a plurality of tool bands 20, in this example five tool bands 21, 22, 23, 24 and 25 respectively, grouped into two separate groups. One group includes tool bands 24 and 25, and one group including tool bands 21, 22 and 23. It will be appreciated that a narrower tool band 20 may be placed over a wider tool band 20 thus permitting a double layer of tool bands 20 over the wrap 14 under which the user can slide tools. In this exemplary embodiment, tool band 21 is narrower than tool band 22 which in turn is narrower than tool band 23. Tool band 23 is attached to the wrap 14. Tool band 22 is attached to the wrap 14 over tool band 23. In turn, tool band 21 is attached to the wrap 14 over tool band 22. The combination of tool bands 21, 22 and 23, installed over the wrap 14 is thus a four layer sandwich with the wrap 14 of the armband 10 on the inside, next tool band 23, next tool band 22, and finally



tool band 21. Tools can thus suitably be slid under any of the three tool bands 21, 22 and 23 independently. This permits tools to be slid through the three separate bands suitably without dislodging other tools, or loosening the grip of the tool bands 20 on tools that are under other tool bands 20.

5 As referenced above, the armband 10 has a second group of tool bands 20 including tool bands 24 and 25. Tool band 24 is narrower than tool band 25, and is attached to the wrap 14 of the armband 10 over tool band 25. This forms a three layer sandwich starting with the wrap 14 at the inside against the user's arm 5, next tool band 25, and then tool band 24. Tools can be slid under either tool band 24 or tool band 25, independently. Tool band 24
10 is narrower than tool band 25, and in this exemplary embodiment is installed centered over the top of tool band 25. Thus the tool band 25 extends out from under the outermost tool band 24 on both lateral sides of the tool band 24.

In this example armband 10, the outer most tool bands 21 and 24 include tool attachment points 30. The attachment points 30 suitably may be any connector permitting
15 auxiliary tool holders (not shown) to be attached. The attachment points 30 may also be tool holders of their own, permitting tools to be clipped to them, slid under them, or otherwise attached or held by the attachment points 30, without the addition of any other tool carrier. Attachment points 30 by way of example and not limitation, include loops, snaps, or magnets. Attachment points 30 suitably may also include flexible grommets that a handle or
20 blade of a tool, such as a screw driver could be slid through. By way of example and not limitation, the armband 10 of FIGURE 1 includes eight attachment points 30, four on the outside of tool band 21, and four on the outside of tool band 24. In FIGURE 1, an auxiliary tool holder in the form of a socket mating clip 70 is attached to one of the attachment points 30 (not shown). The socket mating clip 70 has a stud (not shown) that holds a socket wrench
25 socket 9, as described more fully below in connection with FIGURES 7A, 7B, 7C, and 7D.

The armband 10, by way of example and not limitation, also includes an adjustable loop holster 40, described below, shown in FIGURE 1 holding a rag 8 accessible to the user.

FIGURE 2 is an enlarged view of the armband 10 of FIGURE 1, showing additional details of the tool bands 20 and the holster 40.

30 The adjustable loop holster 40, in this example embodiment, suitably includes a strap 41, a loop 42, and hook and loop fasteners 43. The strap 41 is attached to the wrap 14 of the armband 10 at one end. The loop 42 is also attached to the wrap 14. The strap 41 is threaded through the loop 42 to return to be fastened back upon itself using hook and loop fasteners 43. This permits the holster 40 to be adjustable and to tighten around a tool, or a rag, such as
35 shown in FIGURE 1.



25315
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The tool bands 20 are in the same configuration as shown in FIGURE 1. Tool band 21 is narrower and centered over the top of tool band 22. Tool band 22 is narrower than and centered over the top of tool band 23 forming three layers of tool bands 20 over the wrap 14 of the armband 10. Further up the arm (not shown) of the user, tool band 24 is narrower than and centered over the wider tool band 25 forming two layers of tool bands over the wrap 14. In this example embodiment the tool bands 20 are constructed of a pliable and stretchable plastic material permitting tools 7 to be removably slid under the tool bands 20.

To facilitate sliding tools 7 under the tool bands 20, the tool bands 20 at their lateral edges include raised lips 28 that stand up away from the layer below a suitable amount to facilitate catching the tool band 20 with the edge of a tool aiding in slipping the tool underneath the tool band 20. The lips 28 suitably stand away from the layer below or the wrap below by approximately 1/8" in a presently preferred embodiment. It will be appreciated that where tool bands 20 lie flush against each other or against the wrap 14 of the armband 10, without lips 28, that some tools 7 may be difficult to slide under the lateral edge of a tool band 20 without the user using a second hand to hold the tool band up slightly to insert the tool 7 underneath. In this exemplary embodiment each of the tool bands 21, 22, 23, and 24 and 25, have lips 28 on both of their lateral edges as they span around the arm (not shown) of the user. This permits tools 7 to be readily slid under the armbands 10.

At the elbow end 1 of the armband 10, and at the wrist end 3, there are fasteners 12 that permit the armband 10 to be removably fastened around a user's arm (not shown). The wrap 14 has a width approximately equal to a forearm length of a user (not shown) between the wrist end 3 and the elbow end 1 with the tool bands 20 fastened around the outside of the wrap 14.

FIGURE 3 is a side view of the exemplary armband tool carrier 10 of FIGURES 1 and 2, without any tools shown. FIGURE 3 shows the lips 28 of the tool bands 20 projecting away from the underlying tool bands 20 or wrap 14 of the armband 10 at the lateral edges of the armbands 21, 22, 23, and 24 and 25.

FIGURE 4 is an outside view of the unrolled armband 10 of the exemplary armband tool carrier of FIGURES 1, 2 and 3. It will be appreciated that the armband 10 includes a rectangular wrap 14 that is wrapped around a user's forearm 5. The wrap 14 is suitably thus approximately eight to ten inches wide around the arm, and one foot long along the arm. At the wrist end 3 and the elbow end 1 there are fasteners 12 that include straps that wrap all the way around the user's arm 5 to fasten on themselves using hook and loop fasteners. From this outside view, loop fasteners are shown 16 on approximately one half of the outside of the



25315

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fasteners 12. Under the other half (not shown) of the fasteners 12, are the hook portions on top of the hook and loop fasteners.

Similarly, one lateral edge 18 of the wrap 14 is a loop portion 16 of a hook and loop fastener. Under the other lateral edge 19 of the wrap 14 is a hook portion (not shown) of a hook and loop fastener. Thus, when the fasteners 12 at the wrist end 3 and the elbow end 1 are wrapped around the arm (not shown) of a user to fasten onto themselves at the upper and lower ends of the armband 10, the first edge 18 of the wrap 14 also attaches to the second edge 19 of the body with hook and loop fasteners forming a secure link around the user's arm, from the wrist end 3 to the elbow end 1.

On the outside of the wrap 14, fastened near the first edge 18 and near the second edge 19 of the wrap 14 are the tool bands 20 in two groups as in FIGURES 1 through 4. One group includes tool bands 21, 22 and 23 with tool band 21 centered over tool band 22, which is in turn centered over tool band 23, over the wrap 14. In the other group, tool band 24 is centered over tool band 25 over the wrap 14. All of the tool bands 20, by way of example and not limitation, in this armband 10 are each fastened to the wrap 14 at a first end 26 near the first edge 18 of the wrap 14 and are fastened to the wrap 14 at a second end 27 near the second edge 19 of the wrap 14. This allows tools (not shown) to be slid under the tool bands 20 at any point between the first edge 18 and the second edge 19 of the wrap 14. Put differently, when the armband 10 is wrapped around the user's arm, the tool bands wrap most of the way around the user's arm (not shown) when the wrap 14 of the armband 10 is wrapped around the user's arm (not shown).

In this exemplary embodiment the fasteners 12 at the wrist end 3 and the elbow end 1 of the armband 10 have extensions 13 so that the fasteners 12 are longer than the width 17 between the first edge 18 and the second edge 19 of the wrap 14. This permits the fasteners 12 to more than wrap around the user's arm (not shown) overlapping themselves by a suitable distance to permit a greater holding area for attaching the hook and loop fasteners. Also shown in FIGURE 4 are a plurality of attachment points 30 permitting auxiliary tool holders (not shown) to be attached to the armband 10. Also attached to the armband 10 is the adjustable loop holster 40, described in connection with FIGURES 1-2 above.

FIGURE 5 is an inside or underside view of the exemplary armband tool carrier of FIGURES 1-4 above. The inside is the side of the armband 10 that rests against the user's arm when the armband 10 is wrapped around the user's arm (not shown). In this exemplary embodiment the wrap 14 of the armband 10 includes four pockets 52 that hold magnets 50. The magnets 50 are removably slid into pockets 52. The magnets may be removed to permit laundering of the armband 10. In this example the magnets 50 suitably are thin magnets



25315

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approximately the width and height of a cigarette package. The magnets 50 fit into conforming pockets 52 attached to the wrap 14. The magnets, by way of example and not limitation, suitably may include flexible tabular magnets or sheet magnets of sufficient strength to hold ferrous tools or parts to the outside of the armband 10 when such tools or parts are placed against the armband 10. In this example embodiment the armband 10 are four adjoining tabular magnets 50 in four non-overlapping adjoining pockets 52.

In this inside view of the armband 10, the extensions 13 of the fasteners 12 at the wrist end 3 and the elbow end 1 of the armband 10 include the hook portion 15 of hook and loop fasteners as noted above. The fasteners 10 extend around the user's arm and attach to themselves securing the armband 10 around the arm of the user near the elbow and wrist. The second edge 19 of the wrap 14 on its inside also suitably includes the hook portion 15 of hook and loop fasteners. This permits the second edge 19 to fasten to the first edge 18, between the wrist and the elbow, when the armband 10 is wrapped around a user's arm (not shown).

It will be appreciated that a wide variety of tool holders may be attached to the attachment points 30 of the armband tool carrier of the present invention as described in FIGURES 1-4 above. FIGURES 6A, 6B, 6C and 6D are alternate views of a socket wrench socket carrier 60 that may be removably attached to the attachment points 30 (not shown) of an armband tool carrier of the present invention.

In FIGURE 6A, the carrier 60 suitably includes a portion of a cylinder 62 that somewhat larger in diameter than a socket wrench socket. The cylinder 62 includes a magnet 63 on one end. The carrier 60 includes an attachment 66 for attaching the carrier 60 to an armband tool carrier of the present invention. The attachment 66 includes an openable loop 68 and an eye 67 attached to the cylinder 62. The openable loop 68 suitably may include a flexible plastic strap with a snap or other attachment. The cylinder 62 suitably may be constructed of any suitable material such as metal sheeting, or molded plastic.

FIGURE 6B is a side view of the socket carrier 60 of the present invention. The socket carrier 60 includes a cylinder 62 which in this example embodiment suitably has one end open and the other end having a partially closed bottom 64 holding a magnet 63. The cylinder 62 is open on one side and thus does not completely surround the socket (not shown). There is an opening 65 in the side of the carrier 60 helping the user to insert and remove the socket using the his or her fingers.

FIGURE 6C is a top view of the socket carrier 60 of FIGURES 6A and 6B. The carrier includes an attachment 66 including the openable loop 68 attached to the cylinder 62 with an eye 67. In this top view of the carrier 60, the bottom 64 of the carrier 60 is visible

looking down through the cylinder 62. Attached to the bottom 64 is a magnet 63. The bottom 64 of the carrier 60 is crescent moon shaped with a cutaway towards the open side of the cylinder permitting a user's fingers to grasp the bottom of a socket held within the cylinder 62, aiding in the removal of the socket (not shown) from the carrier 60.

FIGURE 6D is a side view of the exemplary socket carrier 60 of the present invention as in FIGURES 6A, 6B and 6C, with a socket 9 shown in place. The socket 9 partially rests within the cylinder 62 and is held in place with the magnet 63. The portion of the socket extending outside of the cylinder 62 and projecting outside of the edges of the bottom 64 of the carrier 60 permit the socket to be grasped by the user and readily removed from the carrier 60.

FIGURES 7A, 7B and 7C show an alternate embodiment of a socket carrier attachment for the armband tool carrier of the present invention. In FIGURES 7A, 7B and 7C a socket mating clip 70 includes a stud 72 that fits within the mating opening of the socket, removably holding the socket.

In FIGURE 7A the socket mating clip 70 includes a plate 74 that may be attached to the armband tool carrier of the present invention (not shown) with an openable loop 78. Penetrating the plate 74 is the stud 72 that mates with the socket (not shown). The stud 72 includes a standard locking ball 73 and release button 76 permitting the socket to be clipped on the socket mating clip 70 and held in place on the armband tool carrier of the present invention when the socket mating clip 70 with the socket is clipped to an attachment point (not shown) on the armband (not shown).

FIGURE 7B is an end view of the socket mating clip 70 of the present invention. Again, the clip 70 includes a plate 74 penetrated by a stud 72 with a release button 76 releasing a locking ball 73 that holds a socket wrench socket (not shown).

FIGURE 7C shows the socket mating clip 70 with a socket 9 attached in place. The stud 72 extends into the socket 9 and is removably held in place by the locking ball 73 which is released by pushing the release button 76. The clip 70 may be removably attached to an armband tool carrier of the present invention with an openable loop 78. This is shown in FIGURE 7D, where the openable loop 78 of the socket mating clip 70 is looped through an attachment point 30 on the armband tool holder 10. A socket 9 is then removably clipped to the stud 72 of the socket mating clip 70.

FIGURE 8 is a top view of a tabular magnet 50 of the present invention suitably shaped to fit within pockets (not shown) in the armband tool carrier (not shown) of the present invention. In this example embodiment the magnet 50 is assembled from three separate rectangular magnet segments 54 held together side by side by a stiffener 56 attached



to each of the three magnet segments 54. The three magnet segments 54 and the stiffener 56 are held within a cover 58. The cover 58 facilitates sliding the magnet 50 into a pocket (not shown) of an armband tool carrier of the present invention by providing a smooth and continuous surface around the magnet segments 54. By way of example and not limitation, the cover 58 can suitably be a smooth plastic or vinyl cover. The magnet 50 is thus removable from the armband tool carrier (not shown) of the present invention as an integral unit that may be wiped clean while the armband itself is laundered or otherwise cleaned.

It will be appreciated that the tool bands and tool holders attached to an armband tool carrier of the present invention may be configured in a variety of ways. In FIGURE 9 an exemplary armband tool carrier 110 of the present invention includes interwoven tool bands 120 that stretch diagonally across the wrap 114 of the armband 110. The armband 110 includes fasteners 112 at the elbow and wrist ends of the wrap 114. A plurality of tool bands 120, such as those made of stretchable materials described in reference to FIGURES 1 through 4 above are attached to the wrap 114 at their ends (not shown) at a diagonal to the circumference of the armband 110 and the user's arm (not shown). In this example the armbands 120 are interwoven in a basket weave with spaces between the tool bands 120 where tools may be slid under one or more of the bands. As in FIGURES 1 through 4, additional attachment points 130 suitably may be attached to the tool bands 120 or the wrap 114. This exemplary tool armband 110 also includes an adjustable holster 140 of the same type as described in reference to FIGURES 1 through 4 above.

Tool or parts holders such as pouches or straps also may suitably be attached to an armband tool carrier of the present invention. In FIGURE 10 an exemplary armband tool carrier 210 includes a set of straps 281 with hook and loop fasteners. The straps 281, in this exemplary embodiment, are threaded under tool bands 221 of the armband 210. The straps 281 can then be utilized to hold a tool such as a volt-ohm-meter 207. It will be appreciated that a pouch or box suitably may be held to tool bands 221 of the armband 210 with the straps 221 with hook and loop fasteners. By way of example and not limitation, such a pouch could include a fabric pouch with a fold-over or zipper top.

While the preferred embodiment of the invention has been illustrated and described, as noted above, many changes can be made without departing from the spirit and scope of the invention. Accordingly, the scope of the invention is not limited by the disclosure of the preferred embodiment. Instead, the invention should be determined entirely by reference to the claims that follow.